4/PRTS

Specification

Cylinder Pair and Cylinder of a Printing Unit of a Rotary Offset Printing Machine

The invention relates to a cylinder pair and a cylinder of a printing group of a rotary offset printing press in accordance with the preambles of claims 1, 4, 16 or 21.

A printing group of a rotary printing press having at least one transfer cylinder and at least one forme cylinder is known from WO 01/39977 A1, wherein the transfer cylinder has a groove for receiving one or several printing blankets, and the forme cylinder has at least two grooves, arranged one behind the other in the circumferential direction, for receiving one or several printing formes, wherein at least one of the grooves of the forme cylinder is at least partially covered by a printing forme, and wherein the at least partially covered groove of the forme cylinder rolls off on the area of the groove of the cooperating transfer cylinder intended for receiving one or several printing blankets. The ends of the printing formes can be arranged, offset in respect to each other, in different grooves, or the forme cylinder can have at least two printing formes arranged side-by-side in the axial direction, or several printing formes arranged one behind the other in the circumferential direction, wherein in the case of several printing formes arranged over the entire circumference, these can also be arranged with their ends alternatingly arranged offset in respect to each other.

DE 22 20 652 A1 describes a device for fastening flexible printing plates on the plate cylinder of a rotary

printing press, wherein the device has a pair of bracing-clamping cheeks, which are arranged on the same shaft and are arranged in a cylinder groove in the cylinder body, pivotable around a shaft extending parallel with the cylinder axis over the entire length of the cylinder. A bracing-clamping cheek pair consists of a bracing cheek and a clamping cheek, wherein the bracing cheek, as well as the clamping cheek working together with it, are seated, pivotable around a shaft which is parallel with the axis and can be actuated from the front end of the cylinder. In the exemplary embodiment described, four bracing-clamping cheek pairs are alternatingly arranged, once on one half of the cylinder length and again on the other half of the cylinder length. To adapt the device to printing plates of different format widths, it is provided to arrange a short bracing-clamping cheek pair as an extension element between two adjoining bracing-clamping cheek pairs in such a way that it can be connected in the cylinder body with the adjacent bracing-clamping cheek pairs and thus can be pivoted in the same way as the bracing-clamping cheek pairs. Two coaxially arranged connecting shafts are provided in each cylinder groove, which can be rigidly connected with a bracing-clamping cheek pair arranged in one half of the cylinder length and permit a torque to be transmitted from the front end, which is a part of the other half of the cylinder, to the bracing-clamping cheek pair which is connected with the connecting shafts. Accordingly, the connecting shafts are pivotably seated in the cylinder groove in the same way as the bracing-clamping cheek pair connected with them.

A cylinder pair of a rotary printing press with a 6/2 plate cylinder and a printing blanket cylinder is known from DE 25 28 008 A1, wherein the center set of printing plates is arranged on the plate cylinder deliberately offset at an angle other than 90° from the outer sets of printing plates at the ends, and the center printing blanket on the printing blanket cylinder is arranged deliberately offset at an angle other than 90° from the outer sets of printing blankets at the ends. The ends of the dressings which are not angled off and rest on the respectively cylinder, are held by holding means which are movable in wide cylinder grooves. Ends of dressings which face each other form a gap between themselves, which extends over the width of these dressings.

A device for bracing and/or clamping flexible plates with angled-off suspension legs, which project into a fastening slit of a cylinder supporting the plates, is known from DE 199 24 786 A1, wherein the fastening slit is connected with an axis-parallel cylinder groove in the radial direction, wherein a base body, which is open in the direction toward the fastening slit is arranged in the cylinder groove, wherein movable bracing and/or clamping elements are provided in the interior of the base body, wherein the base body can consist of several shorter base bodies, which can be coupled together. The base body(ies) arranged in a row in the cylinder groove are connected with each other, fixed against relative rotation, for example by means of a tooth arrangement, wherein a first and a last base body is connected, fixed against relative rotation, with an end coupling element, whose parts which cover the cylinder

groove are fastened on the flanks of the cylinder, for example by screwing.

A cylinder of a web-fed rotary printing press is known from DE 199 01 574 A1, wherein the shell of the cylinder is divided over its length into adjoining sections, and an opening is provided in each section. This type of construction of a cylinder is not suitable for arranging several dressings on the shell of the cylinder along its circumference.

Such a cylinder of single circumference is also known from JP 10-071 694 A, wherein the forme cylinder and the transfer cylinder are arranged in the printing group in such a way that an opened section of the forme cylinder rolls off on a closed section of the transfer cylinder, and vice versa.

A printing group cylinder with a groove with alternatingly opened and closed areas arranged on the shell is known from DE 198 54 495 A1, wherein tongues of a printing forme to be mounted on the printing group cylinder extend into the opened areas.

A cylinder for printing presses is known from DE 696 04 065 T2, wherein a groove open toward the shell is closed by means of an insertion piece, which terminates flush with shell.

A cylinder of single circumference for printing presses is known from CH 345 906 A, wherein four dressings are arranged side-by-side on the cylinder in its axial direction, wherein each of the dressings is fastened in a bracing groove which is open toward the shell of the cylinder, wherein the bracing grooves of adjacent dressings are arranged offset in

respect to each other along the circumference of the cylinder.

The object of the invention is based on creating a cylinder pair, or a cylinder of a printing group of a rotary offset printing press.

The object is attained in accordance with the invention by means of the characteristics of claims 1, 4, 16 or 21.

The advantages attainable with the invention consist in particular in that openings in the shell of the cylinder are provided only where they are required for holding the dressings. This reduces the danger of a break of the dressings in the course of rolling off a cylinder against which they are placed. At the same time the effects of the groove beat are reduced by the offset arrangement. These steps contribute to quiet running and reduced vibrations, in particular with cylinders of great length, and therefore also to the print quality. In sections of the grooves which are closed against the shell of the cylinders, it is possible to arrange low-cost filler elements without holding means for the dressings in a mounting-friendly manner. In this case the filler elements can be produced in almost every desired length. Since through-bores in cylinders of great length can only be provided with the required accuracy at great expense, in one embodiment variation the cylinders have at least one blind bore extending underneath an outer closed section in the axial direction of the cylinder.

Exemplary embodiments of the invention are represented in the drawings and will be described in greater detail in what follows.

Shown are in:

Fig. 1, a perspective plan view of a cylinder with two grooves and four, side-by-side arranged, dressings,

Fig. 2, a simplified representation of a printing group with a 6/2 forme cylinder and a transfer cylinder (single circumference),

Fig. 3, a perspective plan view of a dressing,

Fig. 4, a partial sectional representation of a cylinder with a groove and a device for fastening a dressing on a cylinder arranged therein,

Fig. 5, a flat development of four dressings arranged side-by-side offset from each other on a cylinder,

Fig. 6, a simplified perspective plan view of a base body or filler element.

A cylinder 01 of a rotary printing press, in particular a rotary offset printing press, is represented by way of example in Fig. 1. This cylinder 01 can be designed as a forme cylinder 01a or as a transfer cylinder 01b and can be covered in the circumferential direction with one dressing, for example, and axially, i.e. in respect to its length L, with four dressings 02a, 02b, 02c, 02d, for example, so that four upright or horizontal dressings are located on the cylinder 01 (Fig. 5).

In connection with a forme cylinder, the dressings are preferably designed as plate-shaped printing formes. In connection with a transfer cylinder, the dressings are preferably rubber printing blankets applied to a support plate, i.e. the dressings for the transfer cylinder are preferably embodied as a metal printing blanket.

The printing group can be designed, for example, as a six-cylinder satellite printing group, wherein four pairs, each consisting of a forme cylinder 01a and a transfer cylinder 01b, are arranged in a frame, preferably in pairs, diametrically around a common counter-pressure cylinder in a preferably identical distribution, so that forces acting when the cylinder pairs are placed against the counter-pressure cylinder are mutually supported, wherein the forme cylinders 01a and the transfer cylinders 01b each have the characteristics of the attainment of the object proposed here. The counter-pressure cylinder preferably has a smooth, i.e. closed, shell without openings.

Arrangements (Fig. 2) are advantageous, particular for newspaper printing, wherein a forme cylinder 01a is covered in its axial direction in a first row with, for example, six plate-shaped printing formes 02a, 02b, 02c, 02d, 02e, 02f and - only sketched in in Fig. 2 - with a second row on the side of the forme cylinder 01a which cannot be seen in the representation, with further six plate-shaped printing forms 02g, 02h, 02i, 02j, 02k, 02l, so that the forme cylinder 02a has respectively two plate-shaped printing formes one behind the other along its circumference. Such a forme cylinder 02a rolls off on a transfer cylinder 01b which, for example, is covered axially with three side-by-side arranged rubber printing blankets 02m, 02n, 02o, wherein each rubber printing blanket 02m, 02n, 02o practically covers the entire circumference of the transfer cylinder 01b. In this example, the rubber printing blankets 02m, 02n, 02o have twice the width and length of the plate-shaped printing formes 02a to 02i. The forme cylinder 01a, for example covered with a

total of twelve plate-shaped printing formes 02a to 02i, and the transfer cylinder 01b covered, for example, by a total of three rubber printing blankets 02m, 02n, 02o, here preferably have the same geometric dimensions regarding the length L of their barrels and of their circumference. With their respective ends 03, 04, the plate-shaped printing formes 02a to 02i are fastened on the forme cylinder 01a in two grooves 11, 12, which are offset by 180°, for example, while the respective ends 03, 04 of the rubber printing blankets 02m, 02n, 02o are held in at least one groove 11'. The forme cylinder 01a and the transfer cylinder 01b are arranged in the printing group in such a way that their respective grooves roll off on each other. To complete the picture, it should be noted here that the forme cylinder 01a can also be covered with dressings designed as panorama printing plate, so that each plate-shaped printing forme contains two print image pages. In this case the reference symbols 02a to 02i shown in Fig. 2 for the dressings relate to the print image pages, wherein the print image pages 02a, 02b, or 02c, 02d, or 02e, 02f, or 02g, 02h, or 02i, 02j, or 02k, 02l are respectively arranged on one panorama printing plate. Each print image page can correspond to a newspaper page, for example. An arrangement of six newspaper pages, placed side-by-side in the axial direction of the forme cylinder 01a, is advantageous.

If now, as will be described later, dressings are arranged offset in respect to each other in the circumferential direction of the cylinder, in the case where panorama plates are being employed, this means that not the individual print pages, but the panorama plates to be

fastened on the shell 13 of the cylinder 01a, each consisting of two print pages, are arranged offset in respect to each other. To make possible an offset arrangement of dressings, in a cylinder with two grooves the dressings must either extend completely around the circumference, wherein both ends of the same dressing are fastened in the same groove, and the ends of an adjoining dressing are fastened in the other groove, or more than two grooves are provided in the cylinder, for example four grooves which are each arranged offset by 90°, so that respectively two dressings can be arranged one behind the other in respect to the circumference, for example, wherein the ends of each dressing are fastened in two different grooves, each offset by 180°, and adjoining dressings are fastened in the grooves which are offset by 90° in respect thereto.

The cylinder 01, 01a, 01b has a diameter D1 of for example 160 mm to 340 mm, preferably between 280 mm and 300 mm. The axial length L of the barrel of the cylinder 01, 01a, 01b lies in the range between 1200 mm and 2400 mm, for example, preferably between 1900 mm and 2300 mm (Fig. 1). A plate-shaped printing forme, or a support plate for a rubber printing blanket, as a rule consists of a flexible, but otherwise dimensionally stable material, for example of an aluminum alloy, and has two oppositely located ends 03, 04, which are to be fastened in or on the cylinders 01, 01a, 01b of a material thickness M of, for example, 0.2 mm to 0.4 mm, preferably 0.3 mm, wherein for forming suspension legs 06, 07, each of these ends 03, 04 is angled off along a bending line 08, 09 related to the extended length l of the dressings 02a to 02o at an angle α, ß between 40° and 140°, preferably

45°, 90° or 135° (Fig. 3). If only a single dressing 02m to 02o has been applied in the circumferential direction of the cylinder 01b, the length l of the dressing 02m to 02o approximately corresponds to the length of the circumference of the cylinder 01b.

In the example represented in Fig. 1, on which the explanation of the invention in what follows is based without being limited to this embodiment, a first groove 11 and a second groove 12 are provided in the cylinder 01, wherein both grooves 11, 12 extend continuously in the direction of the length L of the cylinder 01 and are arranged offset in respect to each other in the direction of the circumference of the latter, for example by an arc of a circle extending over 180°. To avoid a balance error of the cylinder 01 rotating in the printing group, it is advantageous to arrange the grooves 11, 12 in an equidistant manner, i.e. at identical distances from each other. A variation of the arrangement with continuous grooves represented in Fig. 1 consists in that at least one of the grooves 11, 12 only extends over a part of the length L of the cylinders 01, wherein this partial section need not necessarily be arranged at the edge of the shell 13 of the cylinder 01, but instead can also be located between the ends of the cylinder 01 in the interior of the shell 13 of the cylinder 01. For reasons of manufacturing technology and practical reasons, however, it is advantageous to connect a groove 11, 12 extending only over a part of the length L of the cylinder 01 also with a front end of the cylinder 01, so that the non-continuous groove 11, 12 extends under a section closed toward the shell of the cylinder. If, in the example of a 6/2 forme cylinder

01a represented in Fig. 2, the grooves 11, 12 have an opening 14 leading to the grooves 11, 12 in the shell 13, for example in the section B, in which the dressings 02c, 02d, 02i, 02j are fastened, the grooves 11, 12 can pass either through the section A or C to a front end of the forme cylinder 01a. In this case the grooves 11, 12 are designed as blind bores, which are open at a front end of the cylinder 01a, 01b, for example for mounting a holding device for the dressings, and which extend over one or two adjoining sections A, B, C of the cylinder 01a, 01b. The mentioned sections A, B, C will be discussed in greater detail in what follows. The width of the sections A, B, C extending in the axial direction of the cylinder 91a, 01b is preferably defined by the width of the dressings 02m, 02n, 02o on the transfer cylinder 01b.

Both grooves 11, 12 are embodied in the interior of the cylinder 01 at a distance a of, for example 4 mm to 10 mm, preferably 6 mm, under the shell 13 of the latter in the form of a preferably circular bore through the cylinder 01, and each has a diameter of for example 25 mm to 50 mm, preferably 30 mm. The ratio of the diameters D1, D2 of the cylinder 01 and the groove 11, 12 therefore is preferably 10:1. If the cross-sectional surface of the grooves 11, 12 is not circular, the ratio of the cross-sectional surfaces of the cylinder 01 and one of the grooves 11, 12 is preferably 100:1, so that the cross-sectional surface of the grooves 11, 12 is comparatively small in respect to that of the cylinder 01.

In the example represented in Fig. 1, both grooves 11, 12 have been divided in their longitudinal direction in as many sections A, B, C, D as dressings 02a, 02b, 02c, 02d can

be arranged side-by-side on the shell 13 of the cylinder 01, wherein the division into sections of the shell 13 corresponds to that of the grooves 11, 12. In some of their sections A, B, C, D, the grooves 11, 12 have a narrow, slit-shaped opening 14 to the shell 13 of the cylinder 01 (Fig. 5). It is advantageous if, in respect to the same section A, B, C, D, a groove 11 provided with an opening 14 alternates in the circumferential direction of the cylinder 01 with a groove 12 which is closed toward the shell 13 of the cylinder 11. In this way an alternating arrangement of openings 14 in the sections A, B, C, D in relation to the grooves 11, 12 results in the circumferential, as well as in the axial direction, of the cylinder 01.

The slit width S of the opening 14 is less than 5 mm and preferably lies within the range of 1 mm to 3 mm (Fig. 4).

As can be seen in Fig. 5, in this example the number of the sections A, B, C, D, arranged side-by-side in the longitudinal direction in each groove 11, 12 and provided with an opening 14, corresponds to one half of the dressings 02a, 02b, 02c, 02d, arranged offset in respect to each other over the length L of the cylinder 01. If the shell 13 of the cylinder 01 is covered with more than one side-by-side dressing in the circumferential direction, more than two grooves or partial areas of grooves, each distanced on a defined arc of a circle, are provided, and complex cover arrangements result on the shell 13 of the cylinder 01 because of the larger number of dressings.

In this example, for the sake of simplicity the number of the dressings 02a, 02b, 02c, 02d and sections A, B, C, D

was selected as four each, wherein each section A, B, C, D here has ¼ the length of the cylinder 01. As indicated in Fig. 5 in a developed representation of the shell 13 of the cylinder 01, all dressings 02a, 02b, 02c, 02d on the shell 13 of the cylinder 01 are arranged side-by-side in the axial direction, and the dressings 2b and 02d are arranged offset in respect to the dressings 2a and 2c in such a way that these dressings 02b and 02d cover the sections B and D of the groove 12, while the dressings 2a and 2c cover the sections A and C of the groove 11. The groove 11 has an opening 14 to the shell 13 of the cylinder 01 only in sections B and D, while the groove 12 has an appropriate openings 14 in each of the sections A and C. In this example, the dressings 02a, 02b, 02c, 02d enclose the entire circumference of the cylinder 01. Therefore the ends 03, 04 of the dressings 02a, 02c are fastened in the same groove 12, while the ends 03, 04 of the dressings 02b, 02d are fastened in the other groove 11. Thus, each dressing 02a, 02b, 02c, 02d covers one of the two grooves 11, 12 in each section A, B, C, D, while it is fastened with its two ends 03, 04 in another groove 11, 12. In this example, each section with an opening 14 adjoins a section closed toward the shell 13 of the cylinder 01 in respect to a line extending obliquely through all sections A, B, C, D and on the shell 13 of the cylinder 01 parallel with a groove 11, 12, whose position is predetermined by the position of a groove 11, 12. The openings 14 cut into the shell 13 of the cylinder 01 are aligned with each other along this line.

The suspension legs 06, 07 formed at the ends 03, 04 of each dressings 02a to 02o are inserted into the respective

opening 14. It is advantageous to suspend one suspension leg 06 of each dressings 02a to 02o positively connected with a first wall 17, wherein this first wall 17 extends from an edge 16 of the opening 14, which leads in the production direction P of the cylinder 01, 01a, 01b toward the interior of the groove 11', 11, 12. The angle α formed at an end 03 of the dressings 02a to 02o preferably corresponds to the angle α resulting between this first wall 17 extending toward the interior of the groove 11', 11, 12 and an imagined tangent line T resting on the opening 14. The other suspension leg 07 of each dressing 02a to 02o can also be placed against a second wall 19, wherein this second wall 19 extends from an edge 18 of the opening 14, which trails in the production direction P of the cylinder 01, 01a, 01b toward the interior of the groove 11', 11, 12. Again, the angle ß formed on an end 04 of the dressing 02a to 02o advantageously corresponds to the angle ß which results between this second wall 19 extending toward the interior of the groove 11', 11, 12 an imagined tangent line T resting on the opening 14 (Fig. 3 and Fig. 4).

As represented in Fig. 4, a holding device is provided for fastening the dressings 02a to 02o on the shell 13 of the cylinder 01, 01a, 01b in those sections A, B, C, D of the groove 11', 11, 12, which have an opening toward the shell 13, wherein the holding device consists, for example, of at least a holding means 21, for example a clamping element 21 and a spring element 22. The suspension leg 07 (Fig. 03) at the trailing end 04 of the dressings 02a to 02o suspended in the opening 14 is preferably placed against the second wall 19 of the opening 14 and is pressed against it there by the

clamping element 21 with a force F exerted by the spring element 22 on the clamping element 21. An actuating means 23 is provided in the groove 11', 11, 12 for releasing the clamping which, when actuated, counteracts the force F exerted by the spring element 22 on the clamping element 21 and pivots the clamping element 21 away from the second wall 19 of the opening 14.

For easier mounting of the holding device in the groove 11', 11, 12 it is provided to arrange the holding device, which preferably consists of a clamping element 21 and a spring element 22, in a base body 24, wherein this base body 24 preferably is embodied substantially in the form of a cylindrical hollow body, whose exterior diameter D3 is slightly less than the diameter D2 of a groove 11', 11, 12, and which is supported in the groove 11'; 11, 12 by means of its shape, wherein the clamping element 21 is pivotably seated in the interior or on the bottom 27 of this base body 24. It is advantageous to combine the support of the base body 24 in the groove 11', 11, 12 with a securing device against torsion of the base body 24 in that, for example, a stop is formed on the base body 24, which is supported, for example, in the groove 11', 11, 12, or against one of the walls 17, 19 extending to the edges 16, 18 of the opening 14. Because of the considerable length of the sections A, B, C, D, each of which varies in its size as a function of the length L of the barrel of the respective cylinder 01, 01a, 01b, for the easier matching to each position required for them it has been provided to design the base body 24 required for each section A, B, C, D not in one piece, but instead to produce the base body 24 in the form of a partial element,

which is short in comparison with the lengths of the sections A, B, C, D, of a length l1, wherein then several identical base bodies 24 are lined up in the groove 11', 11, 12 for the required length of the sections A, B, C, D. For its preferably positive connection, each base body 24 can be provided at its front end with a groove-and-tongue connection 28, 29, or plug connection. The length l1 of the base body 24, produced as a partial element, can be between 30 mm and 100 mm, for example, and preferably 60 mm (Fig. 6).

In the sections A, B, C, D in which no holding device for fastening a suspension leg 06, 07 of one of the dressings 02a to 02o is needed, i.e. as a rule in the sections A, B, C, D without an opening 14, the introduction of a base body 24 provided with a holding device into the groove 11', 11, 12 is neither required nor efficient. Filler elements 26 are provided for these sections A, B, C, D, whose outer contours can be similar to those of the base bodies 24 wherein, however, the filler elements 26 do not have a holding device in their interior and are therefore more cost-effective (Fig. 6). The filler elements 26 are also preferably embodied as comparatively short partial elements, in respect to the length of the sections A, B, C, D, of a length l2, wherein the length l2, the same as the length l1 of the base bodies 24, lies between 30 mm and 100 mm, and can preferably be 60 mm. In this way groups of approximately five to six base bodies 24 or filler elements 26 are preferably arranged in each section A, B, C, D of a groove 11', 11, 12, wherein these groups are also alternatingly arranged.

It is advantageous to design the filler elements 26 in such a way that they can be shortened in a simple processing

step, for example by cutting or sawing, to any desired length. The base elements 24, as well as the filler elements 26, are preferably made of a plastic material in the form of an injection-molded element, or another material which is easy to work. It is intended to arrange lined-up filler elements 26 in the grooves 11, 12 of all those sections A, B, C, D which are closed, i.e. which have no opening toward the shell 13 of the cylinder 01, 01a, 01b. For connecting the individual filler elements 26 with each other, or to connect respectively first or last filler elements 26 in a row of several filler elements 26 with a base body 24 arranged in the same groove 11, 12, the filler elements 26 can have the same groove-and-tongue connection 28, 29, or plug connection, at their front end 32 as the base bodies 24. For keeping the filler element 26 functional in respect to its connectability with other filler elements 26 or base bodies 24 following a shortening of its length l2, the groove 28 cut into it of a length l3 extends over a large portion of the length l2 of the filler element 26, wherein the length l3 can be up to 70% of the length l2.

A hose, which can be preferably charged with a pressure medium, for example compressed air, which can advantageously be placed into the groove 11', 11, 12 continuously from one front end of the cylinder 01, 01a, 01b to the other, is provided as the actuating means 23 for the holding device in the base bodies 24. The hose, i.e. the actuating means 23, is preferably placed in a location where a clamping element 21 must be actuated. Thus, the actuating means 23 for the holding device can preferably be actuated by remote control, in particular pneumatically, so that the holding device

changes from a closed operating position, in which it holds at least one end 03, 04 of one of the dressings 02a to 02f, 02g to 02m, 02n, 02o, into an open operating position.

It is advantageous to also design the filler elements 26 as substantially cylindrical hollow bodies. With this design, the base bodies 24, as well as the filler elements 26, have a through-hole 31, through which the hose can be conducted in case of a line-up of the base elements 24 and the filler elements 26 in the same groove 11, 12. In particular, if the through-hole 31 is arranged off-centered in the base bodies 24 and the filler bodies 26, or is asymmetrically designed in respect to a line Sy extending through their respective centers O, wherein the center O and the line Sy extending through it are located in the same cross-sectional plane X - X, because of its arrangement or shape, the groove-and-tongue connection 28, 29 or plug connection can be used for aligning the trough-hole 31 of the base bodies 24 as well as the filler element 26 flush with each other, as well as in respect to each other. If the base bodies 24 are arranged, fixed against relative rotation, in the groove 11, 12, a sufficient protection against twisting of the filler elements 26 is also achieved because of the positive connection of all base bodies 24 arranged in the same groove 11, 12. If necessary, the same protection against twisting can be formed on the filler elements 26 as on the base elements 24. An actuating means 23 arranged continuously extending from the one to the other front end of the cylinder 01, 01a, 01b permits the simultaneous and mutual actuation of the holding device in several base bodies 24, which are arranged in the same groove 11', 11, 12. It is

advantageous to assure that at least all holding devices arranged in the same section A, B, C, D of a groove 11', 11, 12 can be actuated simultaneously and together. This embodiment results in holding devices arranged in different sections A, B, C, D to be actuated section-by-section, and they therefore maintain their open operating position or their closed operating position independently of each other. It is thus possible to maintain or release dressings 02a to 02o in different sections A, B, C, D individually and independently of each other.

In a further exemplary embodiment, at least the actuating means 23 are designed as a spindle, for example an eccentric spindle, arranged in the groove 11', 11, 12. If necessary, a clamping element 21 can be formed directly on the spindle, or can be connected with it. By means of a torque acting on the spindle from the direction of a front end of the cylinder 01a, 01b, one or several holding devices can be actuated in the grooves 11', 11, 12. For example, a spindle can extend from a front end of the cylinder 01a, 01b in the groove 11', 11, 12 through a section A or C (Fig. 2) arranged at the edge of the cylinder 01, 01a, 01b, which does not have an opening 14 toward the shell 13 of the respective cylinder 11', 11, 12 and has a holding device in the section B which, in the groove in question 11', 11, 12 has an opening 14 toward the shell 13 of the cylinder 01a, 01b, wherein in this section B the groove 11', 11, 12 designed as a blind bore, as well as the actuating means 23, or the spindle, terminate in this groove 11', 11, 12. It can also be provided that in the same groove 11', 11, 12, for example in the sections A and C, spindles are inserted, which can be

actuated from the front end of the cylinder 01a, 01b, wherein these sections A, C each have an opening 14 toward the shell 13 of the cylinder 01a, 01b, while neither an opening 14 nor a groove 11', 11, 12, or an actuating means 23, or a spindle, are provided in section B. In case of a cylinder 01, 01a, 01b with more than three sections A, B, C in its axial direction, a groove 11', 11, 12 embodied as a blind bore can also tunnel underneath a section B, C, which does not lie directly at an edge of the cylinder 01, 01a, 01b and is closed toward the shell 13.

Regardless of how the groove 11', or the grooves 11, 12, in the cylinders 01, 01a, 01b are designed, whether they extend continuously from one to the other front end of the cylinder 01, 01a, 01b, or are only embodied as partial elements in the respective sections A, B, C, D, in accordance with the attainment of the object proposed here, it is valid for a cylinder 01, 01a, 01b having a circumference U, as well as a length L, wherein the shell 13 of the cylinder 01, 01a, 01b is divided into at least three adjoining sections A, B, C over the length L, that the shell 13 in each of at least three sections A, B, C has a slit-shaped opening 14 wherein, in relation to the circumference U of the cylinder 01, 01a, 01b at least two openings (14) of a section A, B, C, D, are arranged offset in respect to the openings 14 of another section A, B, C, D. In this case, preferably two openings 14 arranged in two different sections A, B, C, D are aligned with each other. Here, every opening 14 opens at least a partial element of a groove 11', 11, 12 extending underneath the shell 13 of the cylinder 01, 01a, 01b.

Using a cylinder 01, 01a, 01b in accordance with the

invention, a printing group of a rotary offset printing press results, for example, having at least one forme cylinder 01a rolling off on a transfer cylinder 01b, wherein the forme cylinder 01a has at least two dressings 02a to 02l axially, as well as along its circumference U, for example, and the transfer cylinder 1b has at least two dressings 02m to 02o axially, for example, wherein at least two of the dressings 02a to 02l arranged along its circumference U are arranged offset in respect to each other. In this case the forme cylinder 01a preferably has at least four dressings 02a to 02l axially, wherein the dressings 02a to 02l are arranged offset in pairs in the axial direction of the forme cylinder 01a. The forme cylinder 01a can in particular have six dressings 02a to 02l, which are arranged offset in respect to each other in pairs in the axial direction of the forme cylinder 01a. In a printing group of this type, the dressings 02m to 02o of the transfer cylinder 01b are preferably as long, relating to its circumference U, as two dressings 02a to 02l of the forme cylinder 01a, so that a forme cylinder 01a of double circumference and a single-circumference transfer cylinder 1b work together with each other and roll off on each other.

As previously described, it is of advantage to design this printing group as a 9-cylinder satellite printing unit. For a printing group with cylinders of great length, for example of a length of up to 2400 mm, wherein the printing group has a forme cylinder which preferably prints six newspaper pages side-by-side in its axial direction and has a transfer cylinder of corresponding length working together with the forme cylinder, has a considerable tendency, in

particular at high rotary speeds, toward interfering bending fluctuations, which negatively affect the print quality and which are even increased by the groove beat between the forme cylinder and the transfer cylinder. It is therefore advantageous to employ cylinders of great length in particular in a 9-cylinder satellite printing unit, because every transfer cylinder in a 9-cylinder satellite printing unit can be supported by a central counter-pressure cylinder, wherein the counter-pressure cylinder is in turn supported by a second transfer cylinder, which is arranged diametrically opposite in respect to the first transfer cylinder. Customarily, the counter-pressure cylinder has a smooth closed shell, which supports the transfer cylinder completely on its surface. This arrangement, together with the groove beat-reducing offset of the center rubber printing blanket in respect to the two outer rubber printing blankets, assures a high degree of reduced vibrations, quiet running, and therefore print quality. Thus, the advantage to be gained by means of the invention consists in particular in that it is possible to design a vibration-reduced printing group even in connection with cylinders of great length, wherein steps taken in connection with the cylinder can be advantageously realized by manufacturing technology.

List of Reference Symbols

01	Cylinder
01a	Forme cylinder
01b	Transfer cylinder
02a to 02l	Dressing, printing forme
02m to 02o	Dressing, printing forme, rubber printing blanket
03, 04	Ends
05	-
06, 07	Suspension legs
08, 09	Bending line
10	-
11', 11, 12	Grooves
13	Shell
14	Opening
15	-
16	Leading edge
17	First wall
18	Trailing edge
19	Second wall
20	-
21	Holding means, clamping element
22	Spring element
23	Actuating means, hose, spindle
24	Base body
25	-
26	Filler element
27	Bottom (24)

28	Groove
29	Tongue
30	-
31	Through-hole
32	Front end
A, B, C, D	Sections
D1	Diameter of the cylinder
D2	Diameter of the grooves
D3	Exterior diameter
U	Circumference of the cylinder
M	Thickness of the material
P	Production direction
S	Slit width
F	Force
a	Distance
L	Length
O	Center
Sy	Line
X - X	Cross-sectional plane
l1	Length
l2	Length
L3	Length